User Manual - MRTT

(Model Railway TimeTable)

MRTT Version 1.0.4.4

Issue History:

July 2006	Version 1.0.1.0	Initial
Sept 2006	Version 1.0.2.0	Enhancement E001: improved Registration, Help/Contact
Nov 2006	Version 1.0.3.0	Enhancement E002: additional user-defined columns
April 2007	Version 1.0.4.0	Enhancement E003: Announcer
May 2008	Version 1.0.4.2	Enhancement E004: Manual Skip direct to arr/dep/pass
Feb 2010	Version 1.0.4.3	Enhancement E005: For Manual Skip, drop trains from display with clock time after the current clock time – e.g. treat the 'Display After' value as zero.
Aug 2011	Version 1.0.4.4	Resolve fail to play sounds in windows 7.

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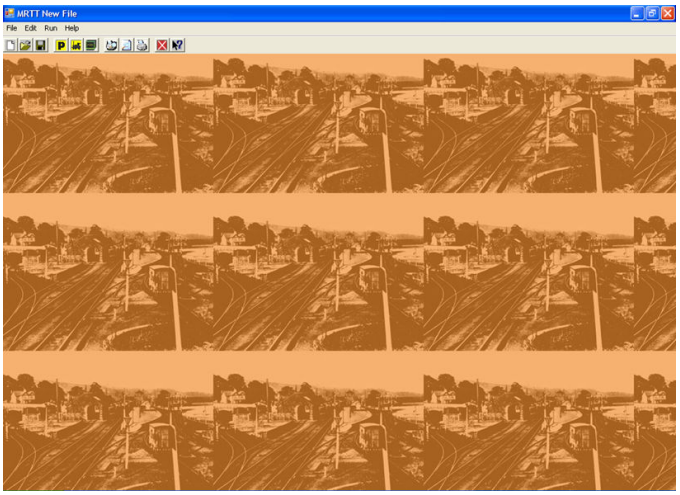
1 Introduction



MRTT (Model Railway TimeTable) will display all trains that run on your model railway. The display bears some resemblance to the displays seen at railway stations. You can have up to fifteen stations, and there are three modes for the display:

Manual Skip - you decide when to display the next train or Information screen by keying 'N'ext, which advances the Clock Time.

Auto Skip - the system will automatically advance the clock to the next train or information display whenever there is nothing else to display.

Timetabled - for the masochists - the system will detect late running trains and automatically cancel them after a suitable interval. Your job is to get in first by indicating your train movement is complete or (hopefully not often) cancelled. The clock advances automatically, at a speed that you set.

The program displays the current time, with a choice of the old fashioned 12 hour clock for us steam enthusiasts, or a 24 hour clock if you must. The clock speed can be varied from normal to ***VERY*** fast.

The train information displayed is:

- Station – where you have more than one on your layout.
- A four character user-defined field (e.g. platform number) – the default is spaces.
- Location the train started from.
- Train times (Arrive, Pass Non-Stop, Depart as appropriate)
- Location the train goes to.
- The train type (e.g. Exp Pass).
- A final user defined column, created by reducing the location column size from the default fifteen characters.

In addition to trains, MRTT can display information consisting of formatted text or pictures. Text screens are created as 'Rich Text', and by using copy/paste they can also include diagrams and/or pictures. These *Info* screens can be related to a train (e.g. description and photograph of a real example), or free standing. Free standing information screens have a range of times for which they are displayed and a display priority. An information item with a long display time but low priority will only be shown occasionally, whereas a priority one item will be shown every display cycle.

You can also add Sound and Announcements so that your admiring audience can hear your train approaching and the Station Announcer giving the train details.

See the additional topics under 'Introduction' if you are new to MRTT.

Just in case you ask - the station is Haltwhistle (Northumberland UK). You will see it elsewhere!

If in doubt on any screen, hold your mouse over a control to see if there is a 'tool tip' - failing that, there is context-sensitive Help.

The program is invoked in the usual way (use 'Start/Run' or use the shortcut), but the installation will also set up a relationship between files ending ".rtt" and the program MRTT. This means that you can also start MRTT by double-clicking any ".rtt" file, in which case the program will load and read in the file on initialisation.

System Requirements

The full requirements for running MRTT are fully detailed on the Web Site, which can be accessed from Help/Contact. It needs Windows 98 or later and your hardware must include a Sound Card if you intend to use the Announcer or sound play functions.

The Announcer function uses Microsoft TTS (Text to Speech) and incorporates Mike, Sam, and Mary (Windows XP & earlier) or Microsoft Anna only for Vista. Any other voices you may already have on your system are automatically included. While the program loads, a check is made to ensure that TTS is available by announcing "loading MRTT" - if this fails you get a message during load advising you that Announcer Functions are disabled.

Known fail reasons:
1) No Sound Card - solution pretty obvious.
2) TTS software and/or voices not available:
   a) Remove BMRC-MRTT (Control Panel/Add or Remove Programs).
   b) Reinstall MRTT version 1.0.4.0 or later.
   c) If that fails, e-mail me!

If the Announcer Functions are disabled, you can still run data containing announcements - but they will be ignored.

SUPPORT

This software was developed by me, Graham Dean, and I will endeavour to support it to the best of my ability. Any queries should be emailed to me (Help/Contact) - you will get a reply within 48hrs unless I am away, sick or deceased! If the Help/Contact link doesn't work – also see above!

1.1 Creating your first MRTT display

This will get you familiar with the main program options in the shortest possible time, with a data file small enough to save if you are using the Trial Version. The Trial Version limits the amount of data you can save, but has no other restrictions - and can read files of any size. The details assume that you are fully set up for the Announcer Function - you will see a message during load if you aren't. For the Announcer to announce, you do need a sound facility on your PC and version 1.0.4.0 or later of MRTT.

1) Use the Parameters Screen to set:

a) Your Railway Name.
b) Your Station Name(s).

The Parameters can be changed at any time, so the only thing that is critical is the addition of additional stations if you have more than 1.

At this stage, you can (will!) create announcements in step 2 but will need to appoint your Announcer in a later step.

Save your data from the main screen.

Create folders (My Computer or Windows Explorer) inside the folder in which you saved the file called 'Pics' and 'Sounds'. Copy a picture and a sound file into the appropriate folders. If you haven't any suitable data, dowload the Pity Me Sample data from my Web Site and use mine!

2) Enter Edit Display Data:

This screen is used to create all your 'Edit Items', each item representing information displayed when you 'Run' the data. Each item consists of any combination of:

- A train
- Information (Info) - associated with the train if one exists. Info is one or more pages which are displayed in turn, and each page is either Text or a Picture. With care, it is possible to create a text page also containing a picture - but let's keep it simple for now!
- A Sound - Mp3 or Wav file. The sound can be set to repeat, and the program will play two sounds at the same time, should you wish it.
- An announcement.

For now, we will create items covering them all.

- Create three trains - just complete the fields and press 'Add'. I have assumed train times after 0010!
- Create an Introduction Info pair of screens by adding an Info only Item, start time 0000 end time 0010, priority 1. Create a Text Page and then a Picture page using a picture stored as step 1.
- If you wish, press OK and have an advance look at the 'Run' option, where pressing 'n' will move between screens - then return here.
- Now add an announcement to one of your trains. The announcement would be made when the train is due, except that at this stage you haven't an announcer!
- Add a text info screen to a train. This will be shown every time the train is shown.
- Now add a free-standing sound item, starting 0010 and ending at 2300. If you set it to 'loop', it will continue to play until 2300 or you schedule two more sounds (max. two playing at once).
- Exit and save your data.

3) Run your data

Select 'Run' and you will be presented with the Run Settings screen, which allows you to amend many of the settings from Parameters, for this run only.

For this test, ensure that the Run Start is 0000 and the mode is Manual Skip. Press OK.

You should now see your two Intro Pages repeating.

For Manual Skip, 'n'ext gives you the next screen. You should now hear the Sound you set up.

Pressing 'n' will cycle through your trains. For the one you added an info screen to, watch for the info page after the train.

Note how everything cycles through midnight, to run the same service 'tomorrow'.

Press the Escape key to leave Run.

4) Set up your Announcer

For all the gruesome details of how the Announcer Function works, refer to the appropriate section of the Run option. In the meantime, find the 'Announcer Selection Board' via Parameters. The program lists your available candidates - you should have at least three, but may have others if you have other speech software installed. Of course, if you haven't a sound device available, your announcer will be superfluous!

Test the candidates - feel free to change the test script, speech rate and volume. Appoint your chosen Announcer.

You will now find that you have some additional options available, but leave them alone for now - you can change them later. Exit the announcer and parameters functions (two 'OK's!) and save your data.

If you now try the Run again, you will find that your appointed Announcer will spring into action!

5) Explore Auto Skip and Timetabled Mode

a) Auto Skip

In this Operating Mode, the clock will advance automatically, with the display changing as appropriate. Whenever the screen is blank, the clock will advance to the next appropriate item. If, during the skip, the time passes Sounds and/or Announcements, they will be dealt with in passing. You can also use 'n'ext as before.

- Bring up Run Settings.
- Set Auto Skip, clock speed 99 and the run start time to (say) five minutes before your first train.
- Run

Adjust the clock speed by pressing +/- keys.

Press 's'top run, 's'tart run.

Press Function key F1 to invoke help.

Switch back to the Run Window and press 's'tart.

Try the mouse right-click options.

When you have had enough, exit Run and re-enter Run Settings.

b) Timetabled Mode

Enter Run with settings as above except use Timetabled. The system will display your trains as in autoskip, but you must:

- When train movements are complete, you must record that fact (see the Help &/or Mouse Menu).
- If a train is late, your public will be so advised, with a random excuse just like the Prototype.
- One a train is no longer within its display period, the system will cancel it. You can also cancel a scheduled train. In either case, your public will be advised of your failings.
- When trains are late or Cancelled, the Announcer will ensure that anybody not watching the display will hear about your operating failures.

As above you can stop the clock - although it would be cheating.

You will probably notice that the announcements for late/cancelled trains leave you somewhat unimpressed. That is because the Announcer derives the announcement from the train details as you entered them. If you use a Train Type of 'Exp Gds', that is what the Announcer will try to say. However, help is at hand! Within the Announcer Function, there is a facility to store a list of abbreviations and suitable expansions, which the Announcer will make use of for locations, Train Types and other fields - see the section within Run for how the announcements are handled.

6) Print Preview

When you try this:

- You will be asked to select your printer if you have more than one.
- You will then get a 'Print Options' menu - the default is good enough for now, and will produce a condensed print of everything.
- You then get your preview, which you can zoom & view all pages - or even print it!

7) Other features to explore via Help or the Manual

Help/Contact - access to the Web Site, email me (anonymous option if you want to be abusive!).

User-Defined train columns.

2 The main options

The menu items on the main screen, mostly also on the tool bar, are:

File
- New - starts a new MRTT file
- Open - opens an existing MRTT file
- Save - saves your current file
- SaveAs - prompts for file name before saving
- Page Setup
- Print Preview
- Print
- Exit - ends the program

Edit
- Parameters - change the parameters for the display, including names of Stations.
- Display Data - all your trains and information

Run - run the current MRTT file after allowing modification of some of the Operating Parameters in the Run Settings screen.

Help
- Contents
- About
- Registration
  - Apply
  - Register
- Contact

Note that, until you have registered, you can only save relatively small files. All other features are available, so an unregistered copy can be used to display data created on a different PC with a registered copy. See the Registration topic for more information.

When creating a new MRTT file, the usual sequence is Edit Parameters, Edit Display Data, Run. However, all the Parameters have defaults and can be amended at any time, so you can ‘dive in’ on Edit Display data and start creating your screens if you wish!

Don't forget that all times are entered in 24hr clock - 12hr clock times are displayed only in the 'Run' option.

2.1 Help/Registration

To get the ability to save meaningful amounts of data, you need a Purchase Key. If you bought the full version of the software you will already have one, otherwise please email me (Help/Contact) for information.

The Purchase Key allows ***YOU*** to register to use the full version of MRTT on ***ONE*** PC.

To Register using your Purchase Key on a PC with email access, just follow the instructions in Help/Registration/Apply. This will result in an email to me with your name and purchase code along with an encrypted string of hardware information for your PC.

The encrypted information contains ONLY your Motherboard Bios, Processor, Hard Drive types/serials, the Windows version and the Computer Name. "One PC" is based on the first three items if the program manages to identify them, otherwise all are used to identify your PC. There is NO personal encrypted data sent.

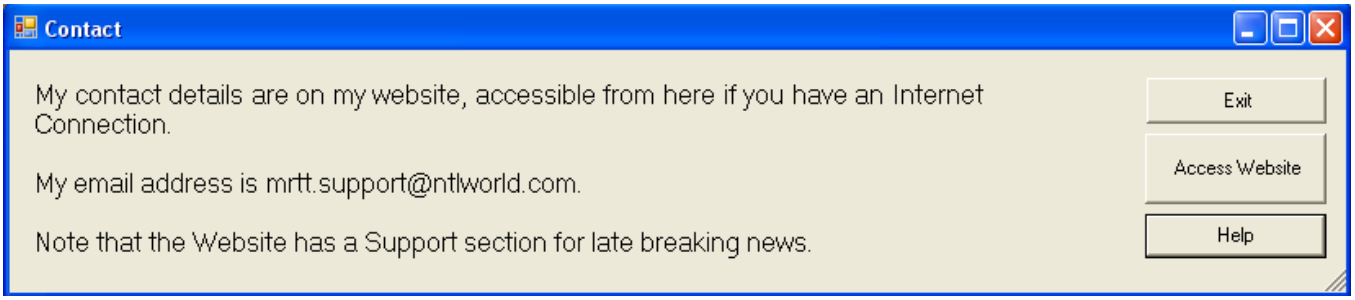
If any of the key hardware items change, you will have to re-register - and supply information to convince me that this is not an attempt to register MRTT on more than one PC for one Purchase Code!

Whichever method is used to generate the email, it is important that the content is not amended in any way because it will be computer processed.

You will then receive a reply containing a 24 character Registration Key, which is entered via Help/Registration/Register - again using Copy and Paste - again via Notepad if necessary.

2.2 Help/Contact

Access Website:


Contact
My contact details are on my website, accessible from here if you have an Internet Connection.
My email address is mrtt.support@ntlworld.com.
Note that the Website has a Support section for late breaking news.
Exit
Access Website
Help

Brings up the MRTT website in a separate Window using your Internet Browser. In particular, refer to:

'Contact' to check whether I am on Holiday, when response to emails will be delayed, or for a change of email address.

'Suppport & Status' for details of updates in latest release and late-breaking information.

If the Internet Link does not work, either:

The site has been moved since your last MRTT update. In this case, a Google search for MRTT Model Railway Timetable should locate it. You will then find that there is a download available pointing your version of MRTT to the new site.

OR

The site no longer exists - meaning that I am no longer able to support the program (RIP!).

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2.3 File Options

Options from the Main Screen Menu 'File' selection

2.3.1 New

Creates a New MRTT file.
If you have changed your current MRTT file, you will be asked if you wish to save it - see File Save.

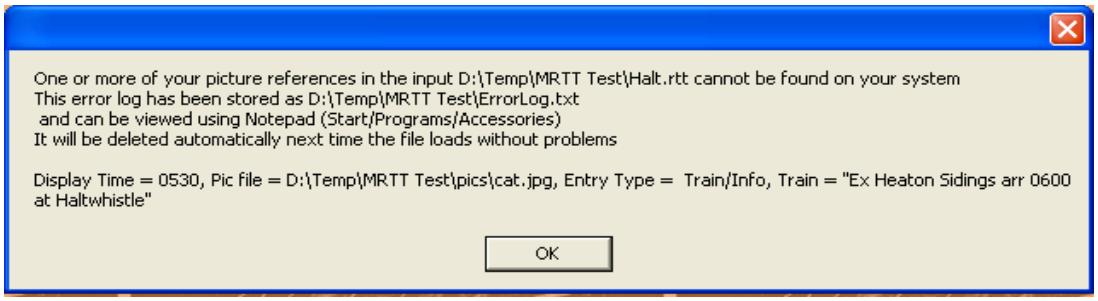
You will then be presented with a new (unsaved) MRTT with default Parameters and no Display Items.

2.3.2 Open

Opens an MRTT (.rtt) file

MRTT will check that the file is a valid MRTT file. If it wasn't created by your software version, after a suitable advice the file will be read and the format adjusted as appropriate.

On reading in the file, references to Info Picture files and Sound files are checked to ensure that the location references are still valid. If any files are missing, warnings are produced and a file 'ErrorLog.txt' is saved: -


One or more of your picture references in the input D:\Temp\MRTT Test\Halt.rtt cannot be found on your system
This error log has been stored as D:\Temp\MRTT Test\ErrorLog.txt
and can be viewed using Notepad (Start/Programs/Accessories)
It will be deleted automatically next time the file loads without problems
Display Time = 0530, Pic file = D:\Temp\MRTT Test\pics\cat.jpg, Entry Type = Train/Info, Train = "Ex Heaton Sidings arr 0600 at Haltwhistle"
OK

The Error Log is normally saved to the same folder as your MRTT (.rtt) file, unless the MRTT file is on a CD - in which case it is saved to the same folder as the program (MRTT.exe). The log contains all the invalid references, and is automatically updated as appropriate each time the file is read. Pictures with an invalid reference will be displayed in Edit Page and Run as 'Haltwhistle' (what else!) with superimposed question marks. As described in Edit Display Data/Picture Page, it is usually best to keep your pictures in the same folder (or a sub folder) as the folder containing your MRTT file, because if you then move the entire data somewhere else (such as a CD), MRTT will maintain the references.

The first twenty different Train Types read in are saved to allow you to easily replicate them when creating/amending trains in 'edit display data'.

2.3.3 Save/SaveAs

If the MRTT data was generated from 'File/New', the SaveAs option is invoked automatically.

'Save' will save to the current file, SaveAs allows you to select the output file name and location.

2.3.4 Print Options

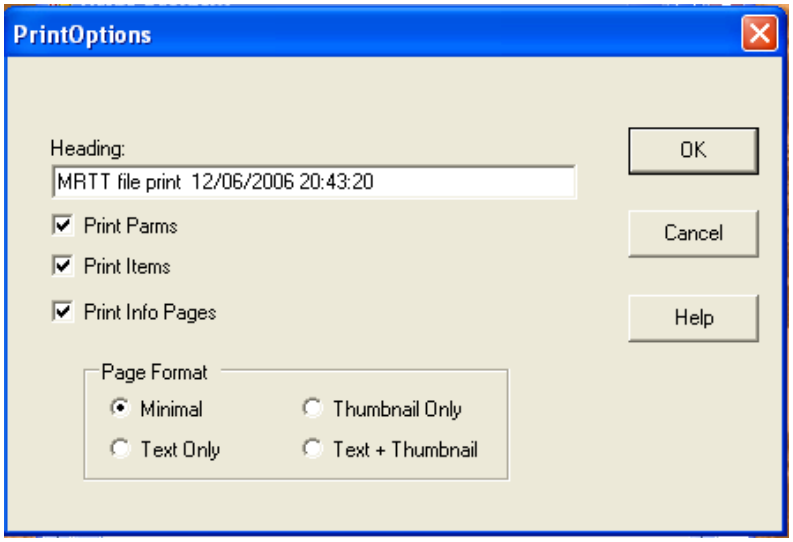
(If you don't have a printer, the options are not available!)

Page Setup - allows you to decide Portrait/Landscape, Margins and Printer details.
Print Preview - shows you what would print if you did...
Print - prints to the selected printer.

Note that all prints are based on the space required to print one Train Line - 85 characters of 9.5 point Courier New.

The default Page Setup assumes A4 Portrait with 15mm margins.

Preview and Print will print your entire file - there is no option to print to file or to select individual pages. In both cases, you will be asked to select your printer and then you will be presented with the Print Options:



Most is self explanatory, but the Info Page formats merit some expansion:

Minimal produces one line of text for each page containing Page Type, page content and heading (which may be blank).

Content - truncated as necessary:

Text screen - the first characters ignoring line throws.

Pic screen - the file name, relative to the MRTT file loaded. If you see drive information (e.g. 'c:'), then this is a new file or your file is not in the same directory path as the MRTT file - see the Info/Info Page/Picture Page topic for more information.

If the file name is too long, the **middle** is removed and replaced with '...'

```
 Display  Station         From            Arr   Pass Dep   To              Train
Strt End                                                                  Type
0000 2359 Priority=1
Text Welcome to the Open Day  We now ru
Pic  \haltpics\File0001.jpg               From a postcard!
```

Text Only produces the heading and lines of text depending on the page type:

Text: Each line of text in the page, with the heading (if present) wrapped to the maximum line length. If the width or the heights are too large to fit the page, the text size will be reduced.

Pic: The full 'relative' file name (as above but not truncated) wrapped so that several Pic pages will fit on one line, and the header (if any) wrapped to the same length.

Thumbnail Only creates and prints thumbnails for each page:

```
0000 0005 Info, Priority=1
```

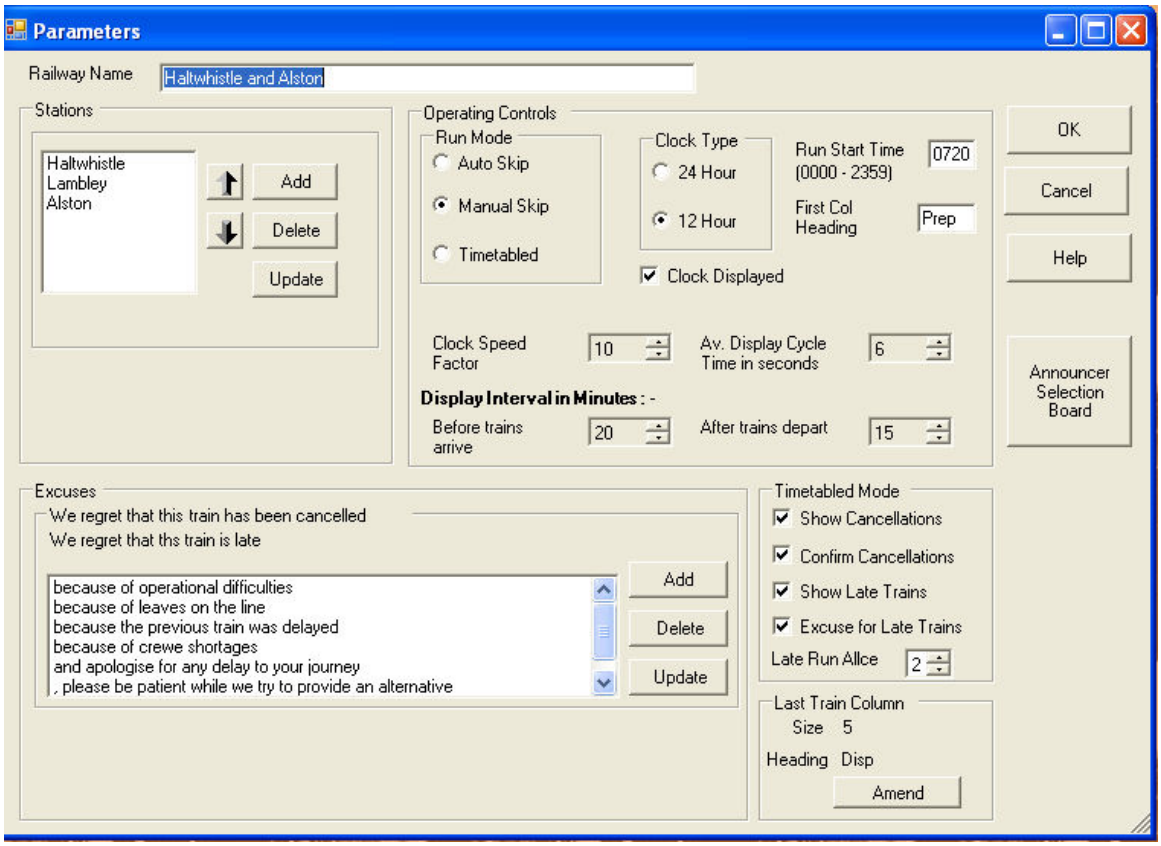
Haltwhistle
We will now run a sample of trains that would have run through Haltwhistle in the fifties and sixties, including all that ran on the branch.
Feel free to ask questions!

An A4 page with Portrait & normal Margins holds 5 thumbnails per row.
The screen will 'flash' while the thumbnails are generated.

Full is a combination of Text and Thumbnail - always printed together on the same row.

2.4 Edit Options

2.4.1 Edit Parameters

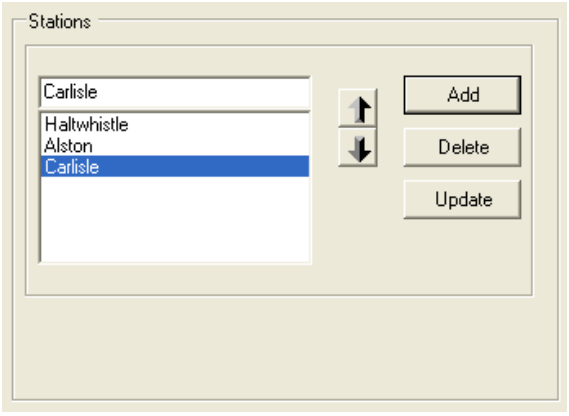


This Edit option is used to set the default options used to create and run your timetable. No permanent changes are made until you press 'OK', pressing 'Cancel' will abandon your changes. Also, of course, changes are only 'committed' when you save the file from the Main Screen menu option *File Save or Saveas*.

The Railway name is displayed on the *Run* screen.

For a new file, all the fields have defaults and most of the settings can be over-ridden during *Run* in the *Run Settings* screen. This means that you don't have to 'get it right' first time!

2.4.1.1 Stations



The ***Up/Down*** buttons allow you to change the order of your stations. During the *Run*, trains are displayed in station sequence. Select your station then move it using the buttons.

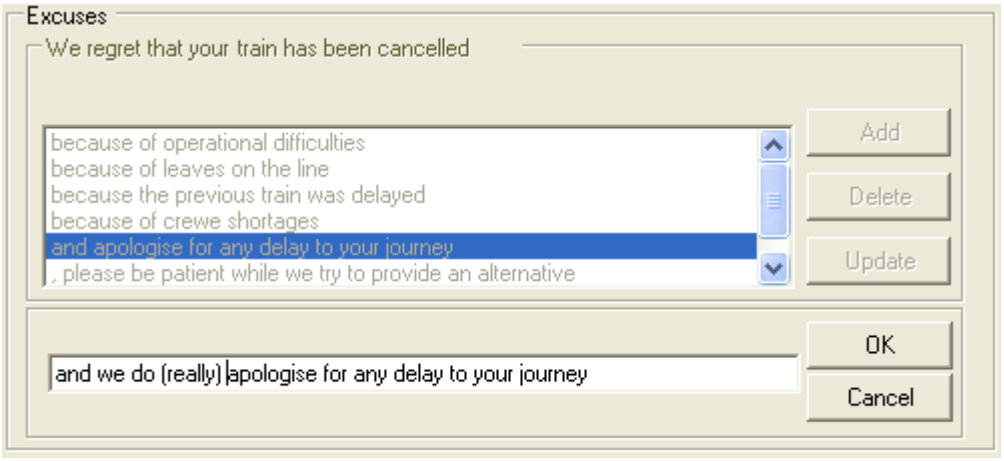
To add a new station press ***Add,*** type in the new station name as below, then press **OK**.

To delete a station, select the station and press ***Delete***. Be careful, because this will cause deletion of all trains at the deleted station, along with all Info pages for the trains, when you exit the Parameters update - although you will be suitably warned!

To change the spelling of a station, select it then press ***Update***. The same update window as above will then open for you to

complete the change.

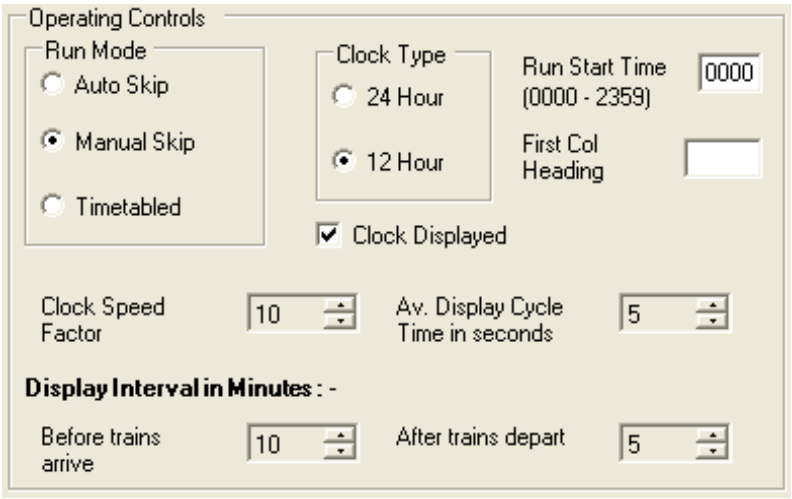
2.4.1.2 Excuses


Excuses
We regret that your train has been cancelled
because of operational difficulties
because of leaves on the line
because the previous train was delayed
because of crewe shortages
and apologise for any delay to your journey
, please be patient while we try to provide an alternative
Add
Delete
Update
and we do (really) apologise for any delay to your journey
OK
Cancel

These are selected randomly (just like the real railways) when explaining to the long suffering public why their train has been cancelled or is late during a *Timetabled mode run*. You have been provided with a selection of stock cancellation reasons, but feel free to delete/add/amend as you wish. Note that the excuses are only used when the operating mode is *Timetabled* and train is late or cancelled. The method of edit is akin to that for *Stations*.

2.4.1.3 Operating Controls

These are the main parameters used in the *Run* option.



Run Mode

This has three possible values, and these descriptions relate to the method of display during Run.

Manual Skip

The Clock is shown (unless you suppress it), but does not automatically advance.

Pressing key 'n' will advance the clock until the next *event* is displayed, even if there are un-displayed screens for the current Clock time. The *event* is the first time after the current Clock Time which is:
A Train arrive/depart/pass.
The display start Time for a *key item* – defined as a train or an Info item with Priority 1 ~ 4.
Use Manual Skip for Sequence Operation.

Auto Skip

The clock runs as normal, and use of the skip key 'n' is permitted. However, whenever no *items* are available for display at a given time (i.e. the screen would be blank), the clock will automatically advance as above, ensuring that something is always displayed.

Fully Timetabled

This option is for the fanatical operators who take delight in trying to run model trains to time. The Fat Controller supervises operation, and each time a planned movement is complete (represented by one train line in the Run display), he confirms completion of that movement. He can also Cancel the train (before the system does) - see below.

If the movement is **not** complete on time, the display shows 'LATE'. If the movement is still incomplete by the end of the train's display period (e.g. depart + display after time), the system will cancel the train with a randomly selected excuse – just like British Rail did! To add further insult to the Fat Controller, if the 'confirm cancellation' option is set, the Cancellation must be acknowledged before he can do anything else.

Cheating by stopping the clock or changing the clock speed is possible but frowned on!

On completion, some efficiency statistics are displayed.

Clock Type
All data input is in 24hr clock, but times during Run can be displayed as either 24 or 12 hr clock times.

Clock Displayed
During the *Run*, you can opt for the Clock not to be displayed. This could be reasonable for *Manual Skip*, but seems unwise for the other options. However, who am I to dictate?

Confirm Cancellation
During a Run, you can also opt for the Fat Controller to acknowledge all cancellations. Otherwise, the Cancellation message is displayed for a reasonable interval.

Clock Speed factor
The initial number of times 'normal' speed for the clock during run. You can dynamically change the speed during run. A clock speed of 1 is approximately normal speed.

Average Display Time
Defines the approximate time a screen will be displayed. The program will adjust this default depending on number of screens and current clock speed

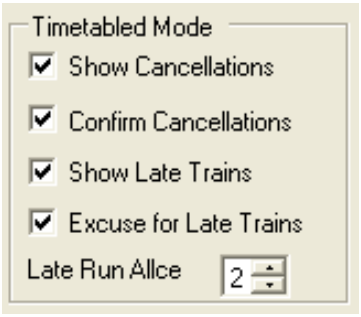
Display Intervals
These determine the period for which a train is displayed. For example, a train arriving 1230 departing 1300 with before/after times of 20/10 minutes will be in the display from 1210 to 1310. The longer you make the Display Period, the more trains are shown on the Trains Screen during Run. Note that for Manual Skip, Display After is treated as zero so that trains disappear from the display when the clock time is after the train arr/pass/dep times.

First Col Heading
The four character train data column's Heading. This column appears between the Station and From columns. Default is spaces.

Run Start Time
The default Start Time for the Run, 24 hour clock.

Late Running Allowance
The allowance made during the Run in Timetabled mode for late running trains, range 0 - 5 minutes. Train movements will be shown 'Late' if not marked Complete within this margin of the scheduled time. Values 0, 1 give you a small performance boost, 3 - 5 a small penalty.

2.4.1.4 Timetabled Mode (Fat Controller)



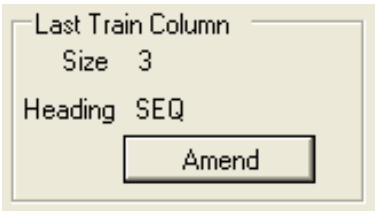
These fields affect how Timetabled Mode operates during Run.

1) If 'Show Cancellations' is un-checked, your Public will NOT be advised when either the System or the Fat Controller cancels a train.
2) If 'Confirm Cancellations' is unchecked, your Fat Controller will NOT have to confirm each cancellation.
3) If 'Show Late Trains' is unchecked, the public will NOT be advised when trains are running late.
4) If 'Excuse for Late Trains' is unchecked, the public will NOT be advised why their train is running late.

Leaving all four unchecked most accurately reflects prototype practice!

The Late Run Allowance is the number of minutes after the train time that the train is considered late, range 0 - 5 minutes. When calculating your performance at the end of a session, values 0, 1 give you a small performance boost, 3 - 5 a small penalty.

2.4.1.5 Last Train Column



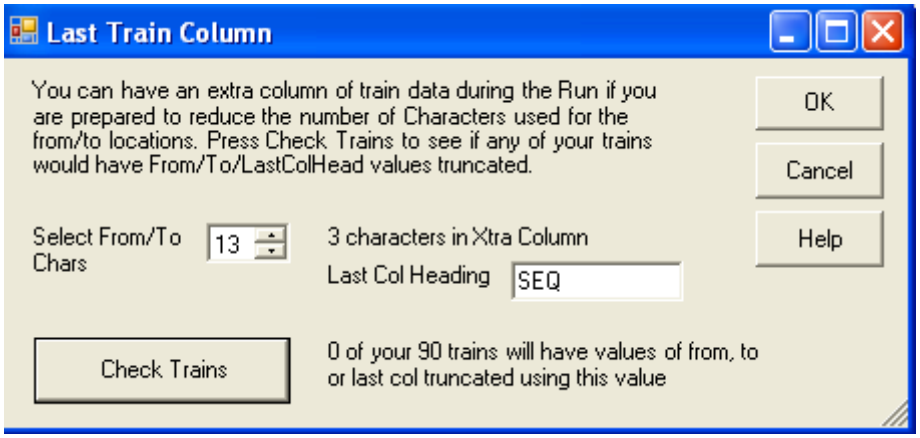
You can trade off smaller train station from/to values against an extra data column after Train Type.

No changes are made until you exit the main parameters screen (by pressing OK), when:-

1) If you have reduced the From/To value, all train items will have values truncated as appropriate.
2) If you have increased the value (reducing the extra column size), extra column values will be truncated as necessary.
3) If your data is filtered and the Filter values are incompatible with the revised column sizes, the Filter will be removed.

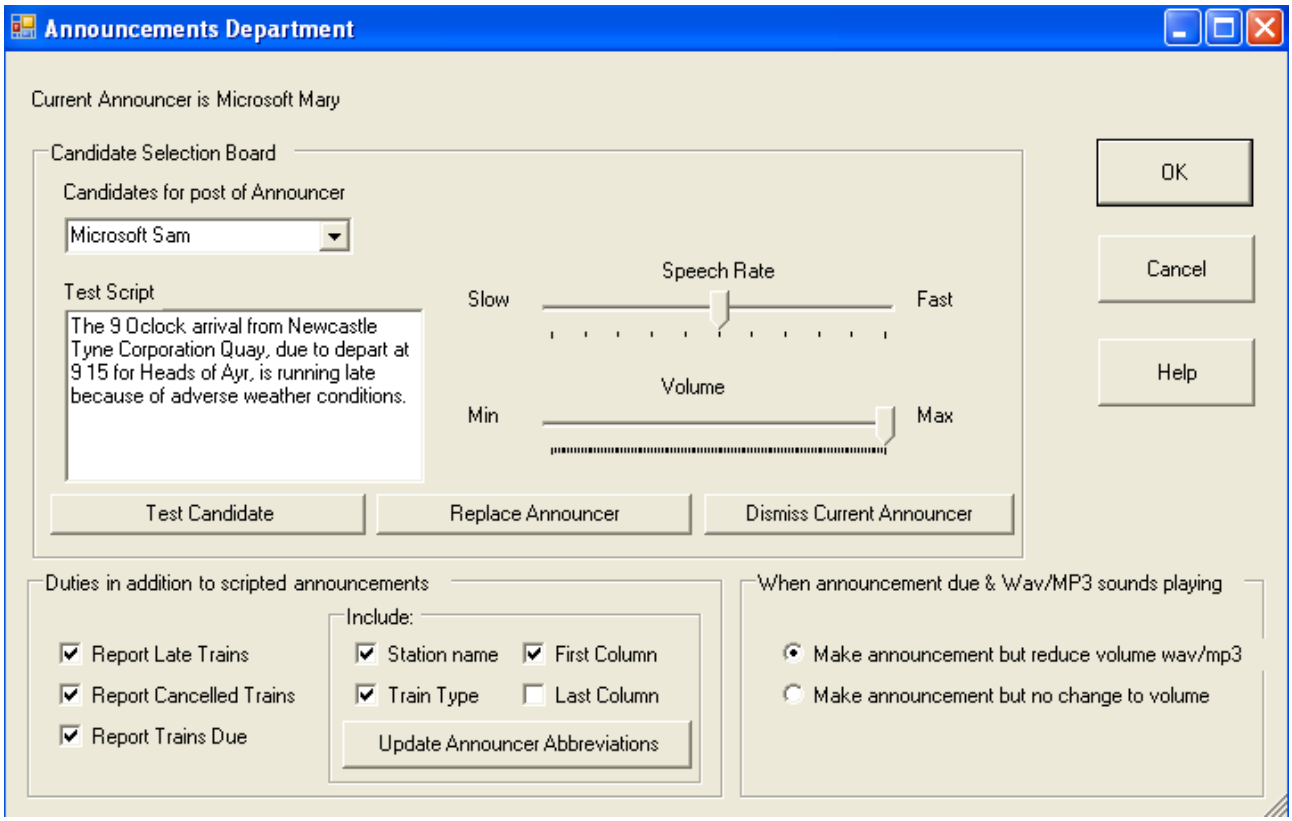
This ensures that your data is kept in step with your Parameter values.

Clicking Amend brings up the screen to change the values:


Last Train Column
You can have an extra column of train data during the Run if you are prepared to reduce the number of Characters used for the from/to locations. Press Check Trains to see if any of your trains would have From/To/LastColHead values truncated.
OK
Cancel
Help
Select From/To Chars
13
3 characters in Xtra Column
Last Col Heading
SEQ
Check Trains
0 of your 90 trains will have values of from, to or last col truncated using this value

Check Trains advises you of any values that may be truncated using these values.

2.4.1.6 AnnouncerSelection



This option is reached from the main Parameters screen. Once you have optionally tested the candidates, you can make your appointment. Feel free to amend the test script. Once appointed, the Announcer will always speak at the rate and volume agreed at appointment, but of course you can retrain volume/speed as you wish - you are in charge!

When announcing Late or Cancelled trains during Run Timetable Mode (see the Run option), the announcer can translate abbreviations on the display screen - for instance Train Type 'Br Gds' can be announced as 'Branch Pickup'. To add abbreviations, click 'Update Announcer Abbreviations' after you have appointed your announcer.

In all modes, the announcer can also announce when a train is due - i.e. the time is the same as the arrive, depart or pass times for the train, again expanding abbreviations as appropriate. However, if the announcer has more than one other announcements, he/she will not have time for 'train now due' announcements.

The other options are self-explanatory, and are only available when the Announcer has been appointed.

On completion, press OK - and OK again in Parameters to commit the changes.

2.4.1.6.1 Abbreviations

To amend or delete an entry, select it then:

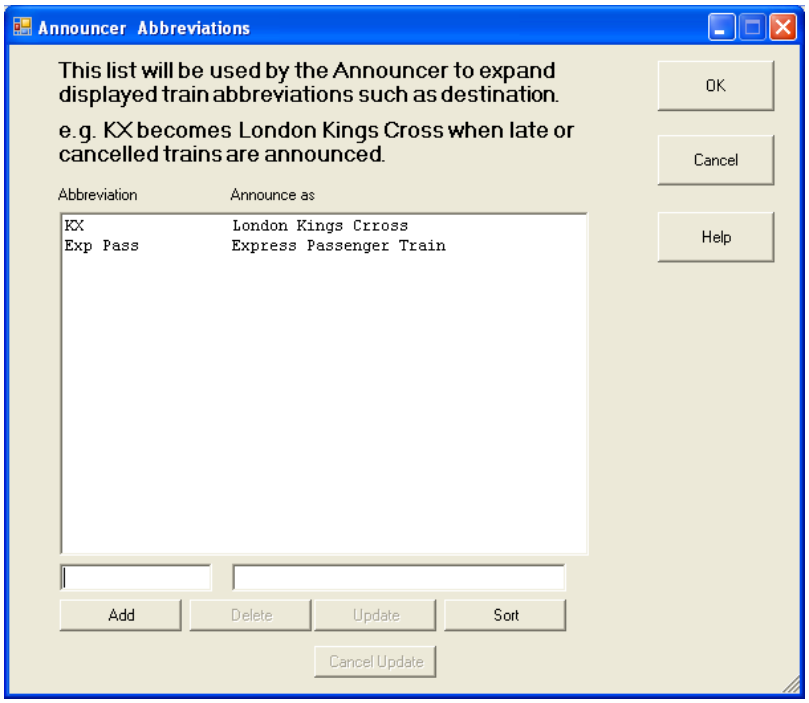
- amend and click Update/cancel update
- or click delete

To add a new entry, enter the values in the two text boxes and click Add.

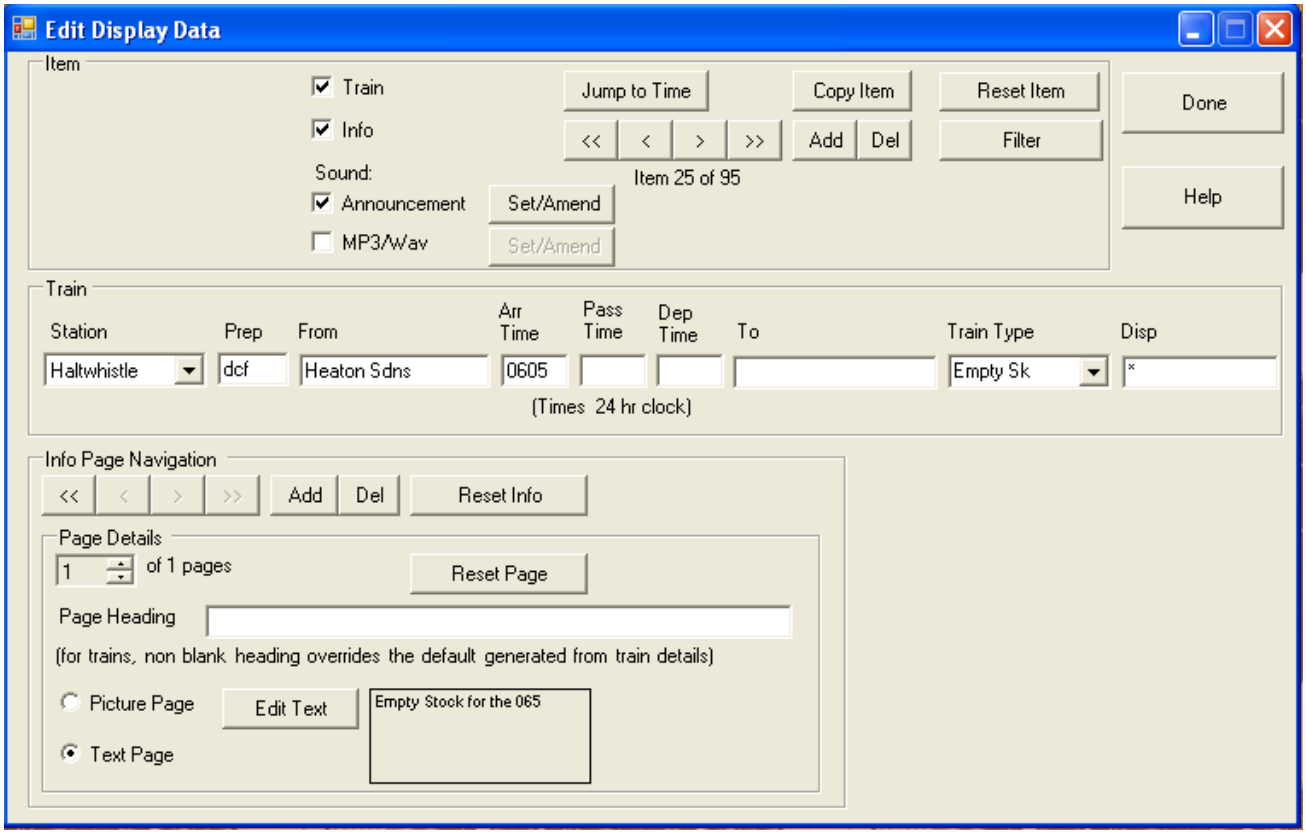
Sort is pretty obvious!

Note that changes are not committed until you click 'OK' in the Parameters screen.

See the Run/Announcer topic for further details on the use of abbreviations.



2.4.2 Edit Display Data



The Edit Display Data screen has four regions; the first three are described in detail later.

1. Item Information related to the entire display Item.
2. Train Information, when the Item is a train or a train with Info.
3. Info details, when the Item is a Train with Info or Info only Item. The Info Section is sub-divided into 'all info' (e.g. page navigation) and individual page details. There is no limit on the number of pages, although the display interval may be shortened if you have a lot of pages.
4. The error box, displayed only if you have data entry errors.

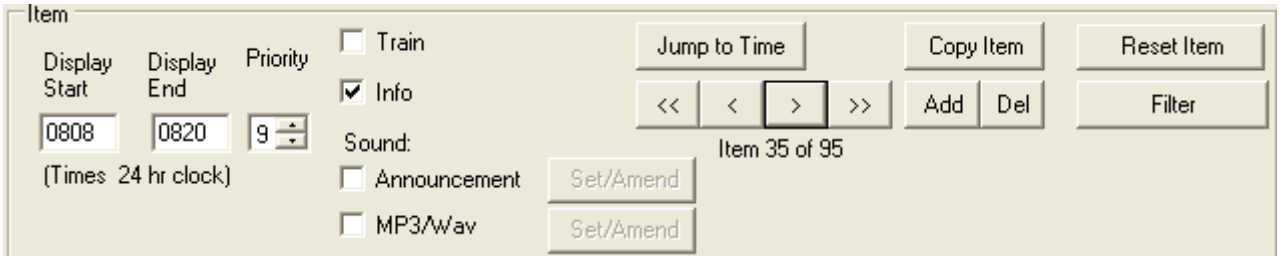
An Item can consist of any combination of train, info (any number of pages), sound to play (Wav/MP3) and scripted announcement.

Where appropriate, an additional section is displayed in the Item Information for entry of Display Start, Display End and Priority. For trains, the program assigns these fields based on the display before/after values entered in Parameters and a Priority of 1 (always displayed).

Note that once an Item has been edited and validated, it is part of your data - if you are unsure whether your changes make sense 'Save' from the main menu under a different file name! You can only 'Cancel' the changes for the current item (Item Reset).

Also look carefully at the Info Page section if you intend to use a lot of pictures!

2.4.2.1 Item



The above is an Item showing all controls. The Display Start/End and Priority are only shown for non-train items - for Trains, the Priority is always 1 and the Display times are calculated from the times Arr/Dep/Pass and the Display Before/After times set in the Edit Parameters screen. Which fields are shown depends on the combination of info/announcement/sound selected.

Priority 1-4 Items (train and/or info) are always displayed at least once during *run*, and are *Key Items*. The next *Key Item* is displayed in the Run for Manual/Auto Skip modes in response to key 'n'ext. The program will also treat sounds and announcements as *Key Items.*

Sound items are played **the first time** the Sound item enters the time band defined by the current clock time and the Display Before/After times, and ignored thereafter.

The '**Item Navigation**' buttons are:

<<	First Item
<	Previous Item
>	Next Item
>>	Last Item
Add	Add a new Item
Del	Delete the current Item.

Each time you change the current item, changes are validated and (if valid) saved in memory.

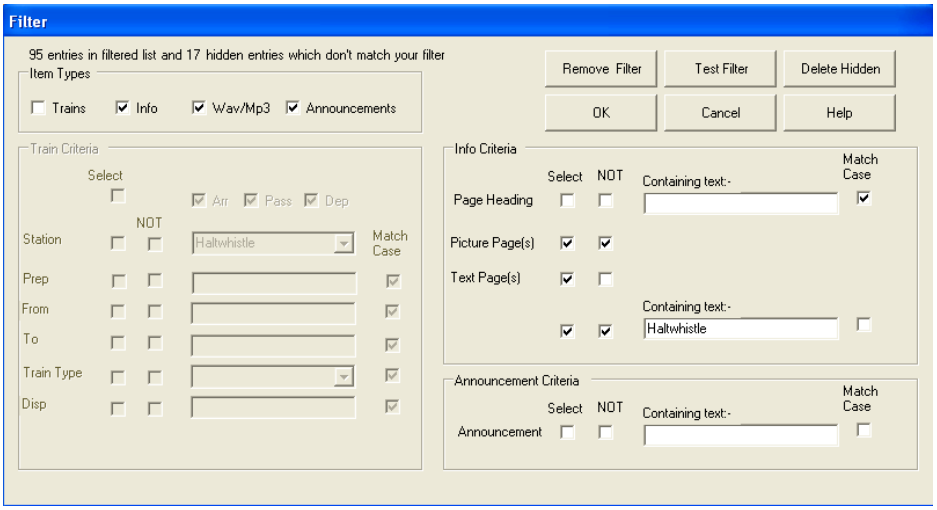
Items are in Display Start sequence. If two or more have the same display start, the display end is used to determine the sequence.

Reset Item removes all changes for the current item under edit.

Jump To Time searches for an item at or after a given time. It remembers the criteria used last time, so setting 'After Current Item' will step through each item matching the criteria. For more control over the selection criteria, use a Filter.

Copy Item creates a copy of a validated item. This option is useful when you are (for instance) creating a series of trains differing only in the times.

2.4.2.2 Filter



The filter settings describe the conditions for inclusion in the main 'filtered' list, and are in four categories:-

1) The Item Types you require.
2) The Train criteria.
3) The Info criteria.
4) The Announcement criteria.

You tick the 'Select' box and, where appropriate, complete the additional information for the selection. The 'NOT' criteria will match only when the test is NOT satisfied.

Test Filter will test each Item against your filter settings and place it in the appropriate list. Note that an Item matches the filter **only** if **all** the criteria apply. You can then amend your filter settings and repeat as necessary.

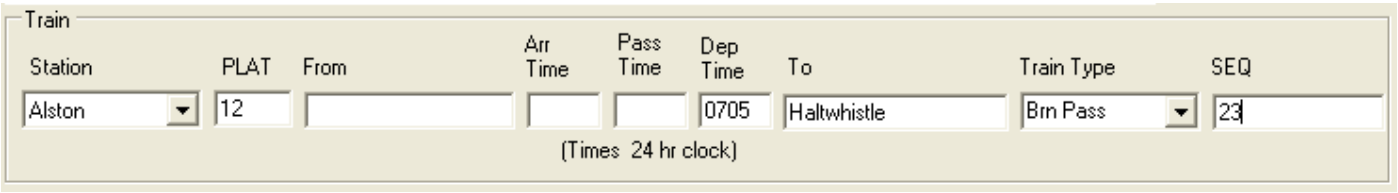
Remove Filter sets a default filter that matches all possible Items.

Delete Hidden will, after an appropriate warning, **permanently** delete **all** the hidden (filtered out) Items.

OK will apply the filter if appropriate and return you to the Edit Display Data screen.

Cancel will return you to the Edit Display Data screen with the filter as it was on entering the Filter routine.
Note that once a filter is set, it remains so even for Save/Open and Run!

2.4.2.3 Train



Station is where it all happens. The values are set in Edit Parameters.

PLAT is the user-defined four character column - in this case used for platform numbers.

From and **To** are free format. If you are creating a series of trains, use 'copy item' to avoid the typo's!

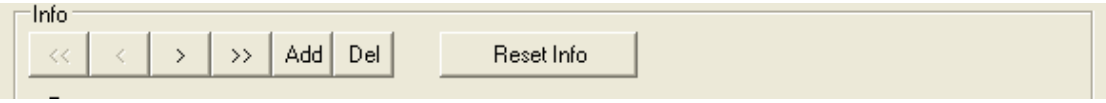
Pass Time is the time a train 'passes' (non-stop) the station, Arr/Dep times are fairly obvious!

The **Train Type** can be anything you like - the usual is Exp Pass, Br Pass, Br Gds etc. The system will retain the first 20 values you enter to save data entry time and reduce errors.

SEQ is the final user-defined column, created in Parameters by reducing the size of **From** & **To**.

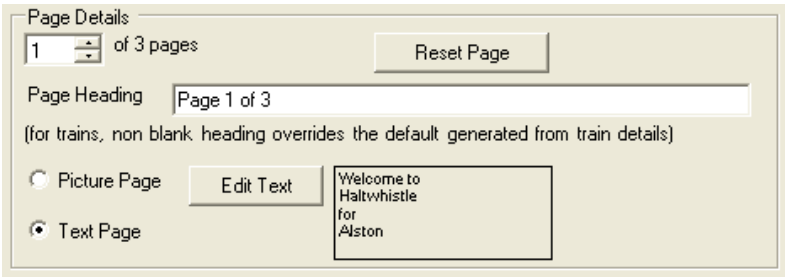
2.4.2.4 Info

You will remember that Info consists of any number of pages, each page being Picture or Text.



The Info navigation buttons step through the Info Pages in the same way as the Item Navigation buttons step through Items. The 'Reset Info' button will restore the info to the state that it was first displayed.

2.4.2.5 Info Page



You can use the Page number control (top left) to change the order that your pages are displayed. The Reset Page button resets the PAGE to its initial state - use *reset info* (see Info Page) to reset the entire info (all pages).

The Page Heading is displayed with the Picture or Text screen during Run. For Train Info pages, if no over-ride heading is entered, a default page heading is generated from the related train.

Pages are either a picture or a text screen - although text screens can include diagrams and/or pictures (see the Text Page topic).

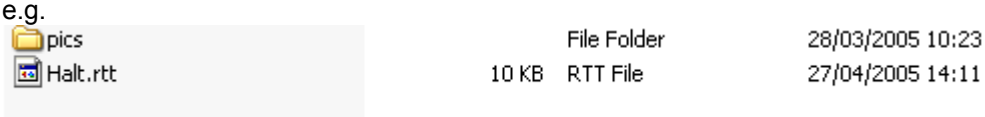
2.4.2.5.1 Picture Page

Pictures will always be stretched to fit the available space - although during Edit only a thumbnail is shown. The Pic File button allows you to select or change the picture file you wish to display. A range of formats are supported.

IMPORTANT!

If you want to be able to copy an MRTT file to another folder or drive, you should ensure that ALL pictures (and sounds) referenced are in folders at or below that for the saved file, because otherwise MRTT will not be able to resolve the new links. When you create the copy, (My Computer or Windows Explorer), copy the .rtt file and all pictures/picture folders.

e.g.

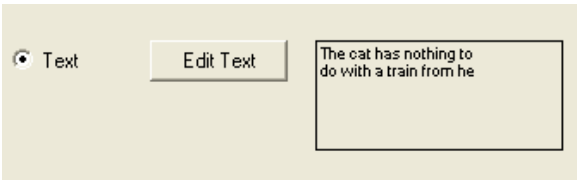


If the system loses track of your pictures, you will be advised and a special Thumbnail is displayed: (Haltwhistle again!)

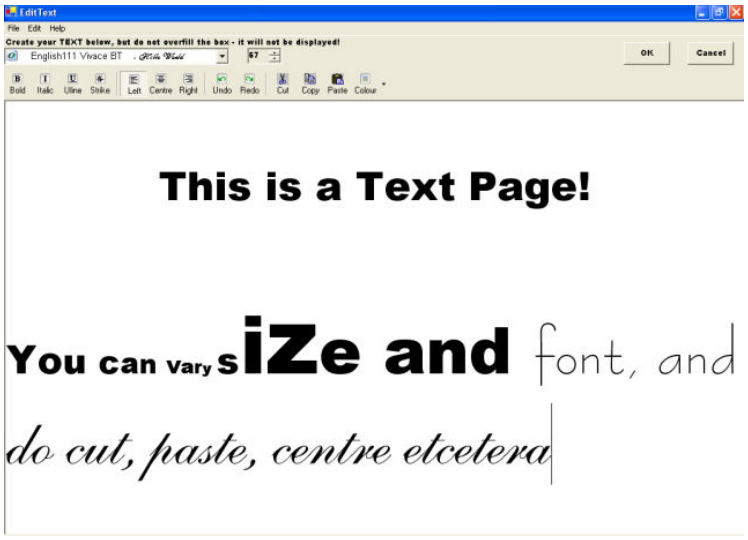
The same picture (full size) will be displayed during the *Run* option where pictures have not been matched.

To help you 'get it right', when you read in or save a file, the Main form heading will indicate whether the data saved/read is 'Relative' (can be transferred to another PC) or 'Not Relative'.

2.4.2.5.2 Text Page



The Thumbnail shows the first few characters of the first few lines in the display. Press 'Edit Text' to create/edit/browse the text. Note that the following example is NOT the text page above!


EditText
File Edit Help
Create your TEXT below, but do not overfill the box - it will not be displayed!
English111 Vivace BT
OK
Cancel
Bold Italic Uline Strike Left Centre Right Undo Redo Cut Copy Paste Colour
This is a Text Page!
You can vary size and font, and
do cut, paste, centre etcetera

The Text Screen is displayed the same size as it will be displayed to give information to your impressed viewers (see the Run option). If you get a vertical scroll bar, the screen is too big to display.

Most of the text entry should (I hope) be self explanatory. The screens are stored as 'Rich Text', a format also supported by most (probably all) Word Processors. Should you wish to create a complex screen, try creating it in Word and use the Copy/Paste options into the text screen.

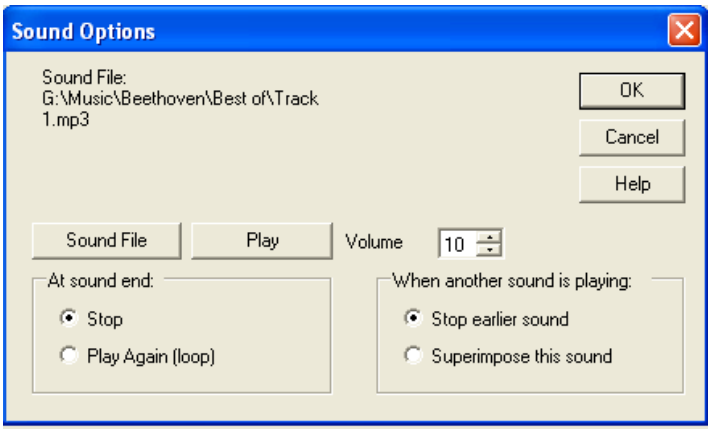
I have imported pictures and Coral Draw diagrams without problems, but I would suggest that if you intend to create an esoteric Text Screen using Paste you should Save any important changes from the Main Menu first.

Note also that you have a choice of four colours including black.

When you select text, note that font, font size, bold, italic, underline and strike out are automatically set to values that apply to the ***entire*** selection; if there is no common value then defaults are used. Changes (e.g. click underline) will be applied to the entire selection. Thus the Bold button being un-pressed means that at least one character in your selection is **not** bold, whereas pressed means **all** characters are bold.

2.4.2.6 Sound

The Sound options are invoked automatically on creation of a Sound item, and can be edited by pressing the 'Change Sound' button.



Every time the Sound file is changed, it will play automatically. The Volume is initially set to 10 (Maximum).

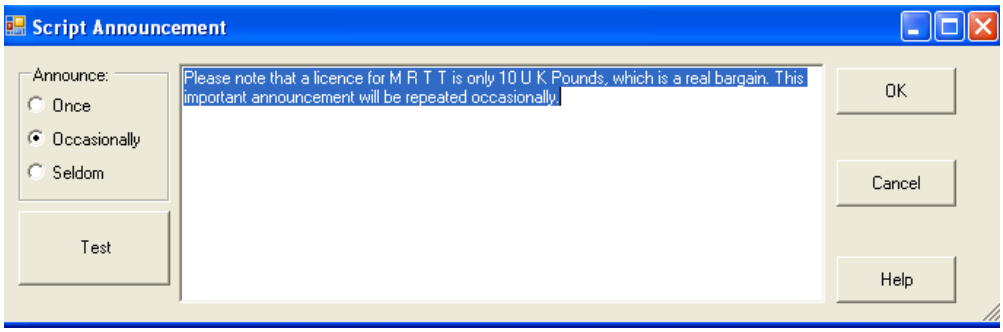
The 'Superimpose' option will cause this sound to be played together with **one** other sound during the run option. The code will automatically suspend the 'earliest' sound if two are already playing. The time the sound starts depends on the item types which co-exist with the Sound:

- None or Announcement - starts at the Display Start time.
- Train - starts at the earliest of Arr, Pass, Dep.
- Info but no Train - starts when (or if) the first page of the Info is displayed.

When a Sound ends (out of time or not loop), the system will check to see whether a suspended sound can be restarted.

Again, the sound files (wav/mp3) should be saved in the same directory or a lower directory than the MRTT 'rtt' file - see the Picure Page option.

2.4.2.7 Scripted Announcement



The announcements screen is shown automatically when you first tick the Announcement checkbox. Even if you have yet to appoint your station announcer (via the Parameters screen), you can still create and test new announcements - although they would be ignored in Run.

'Occasionally' means not very often - and 'Seldom' is even less often!

During Run, the announcement will be added to the announcement queue depending on the associated Item Types:

- Announcement only or Announcement & Sound - at the Item Start Time
- Train - starts at the earliest of Arr, Pass, Dep; announced once.
- Info but no Train - announced when (or if) the first page of the Info is displayed.

The fact that announcements are queued means that, if the announcer is busy, some time may elapse before the announcement is made.

2.5 Run

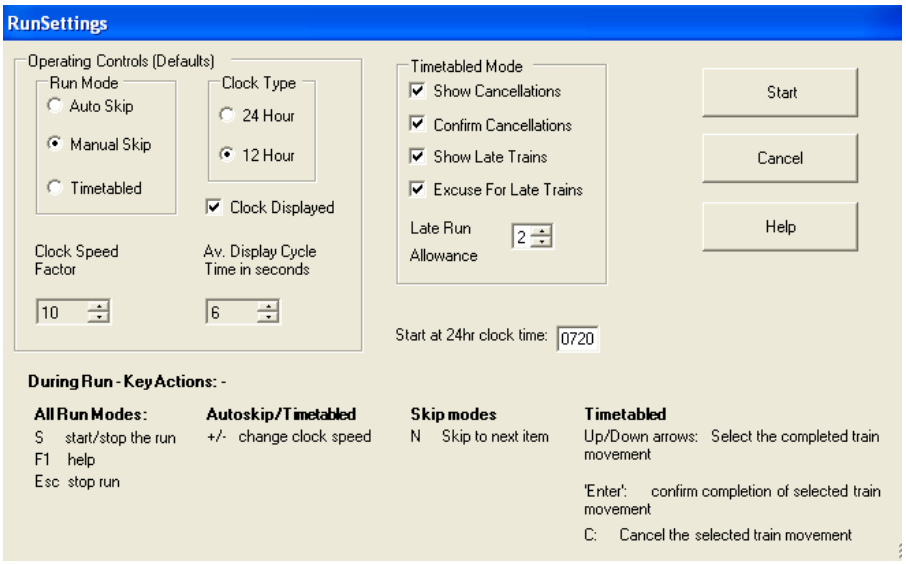
This is where it all happens!

If you are silly enough to select Run before you have created any display items, you will be gently advised of the error of your ways, otherwise you are presented with the Run Settings screen below.

2.5.1 Run Settings

The settings fields allow you to change the defaults that were set up in *Edit Parameters.* OK starts the Run, Cancel returns you to the Main MRTT screen. Note that, if a filter has been applied, the **filtered** list is used.

In Timetabled mode, assuming that you have not cheated by turning of Late Train Display and Cancellations, the Late Running allowance can be 0 ~ 5 minutes. Trains will be shown 'LATE' after this period. The default is two minutes, but a lower value will give you a (small!) performance bonus and an increase will incur a performance penalty.

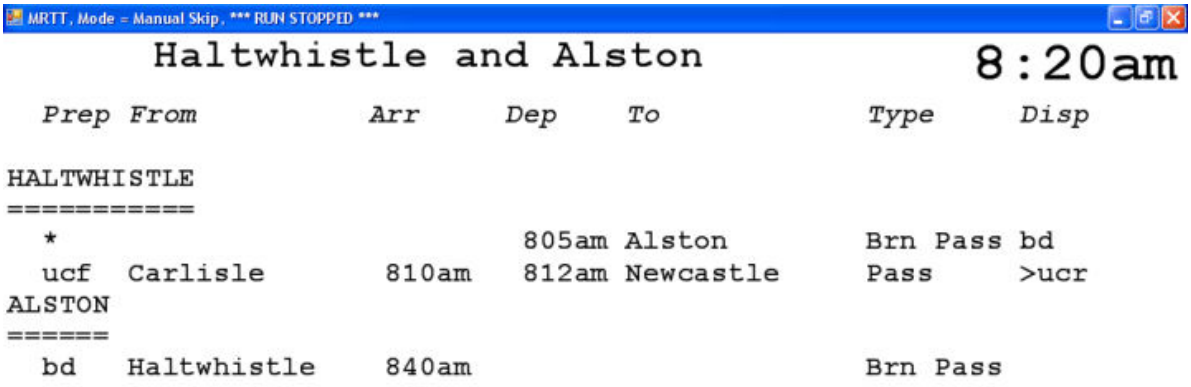


See the screen shot for key usage during Run, and note also:

In Timetabled mode, depending on your settings, you can also use Page Up/Down, Home and End keys to select a train for Cancellation or Completion.

Because some users feel bereft when deprived of the mouse, all Run options can also be accessed via right-click! The only significant difference between the keyboard and Mouse actions is that the Clock-speed changes via the mouse are bigger changes but take longer - use the keyboard for speed or for fine tuning!

2.5.2 Run Display – general


MRTT, Mode = Manual Skip, *** RUN STOPPED ***
Haltwhistle and Alston
8:20am
Prep From Arr Dep To Type Disp
HALTWHISTLE
*
805am Alston Brn Pass bd
ucf Carlisle 810am 812am Newcastle Pass >ucr
ALSTON
bd Haltwhistle 840am Brn Pass

The above is from a **Train Display Screen**. Note that the Title shows status information. The station names are only shown when you have more than one Station in the Run, and are always displayed in upper case and underlined.

In this case, the user-defined columns Prep and Disp indicate the Preparation and Disposal for the train - eg Prep '*' tells my son Richard to look at the supplementary notes and Disp '>ucr' means 'move the train in Up Storage Rear to the front slot then bring this train into the rear slot'.

The run will be automatically stopped when you change the display to other than Maximised or you invoke Help by pressing F1. Press 'S'tart to restart the run after help - it will restart automatically on Maximising the display. You can Start/Stop the run at any time by pressing 'S' or 's'. It will also stop while mouse actions are in progress.

To return to the Main Screen, press Escape or click the top right screen close button.

The following topics expand on the Run option - see the Glossary & Full Technical Detail for the full specification.

2.5.2.1 Screen Sequence and Timing

Screens are created:

1. Identify all Items with Display Start and End spanning the current time.
2. For each item, determine whether it should be displayed this time based on Priority.
   Priority 1 which includes Trains - always, Priority 2 - 9 decreasing likelihood of Display; see Notes (Priority) for the full description.
3. Generate screens for selected Items:

   Order is Info Only (all pages), Train display (all pages but usually 1), Train Info (all pages).

   Calculate screen display elapsed time from number of screens, the current clock speed and the time to next requirement for recalculation (i.e. the next item added or removed). If this exceeds the average display cycle time (Edit Parameters), use the parameter value. If it is shorter, check whether all screens in the list have been shown at least once - if so use the old value (unchanged), otherwise use the new shorter value.
4. Display screens in sequence. After displaying the last screen, adjust the screens to allow for non-displayed (priority 2 - 9) and start again.

   Repeat from start when a new item is due to enter or leave the list.

You will appreciate that if you have a lot of screens and you increase the clock speed to it's maximum value you will get a very short interval between screens! The facility to dramatically increase clock speed is provided mainly so that you can fast-forward your time and check that screens are displayed in the right sequence and frequency. If this is your intention, it is wise to use Timetabled mode and select NOT to acknowledge cancellations. The cancellation frequency will increase if the clock speed becomes excessive.

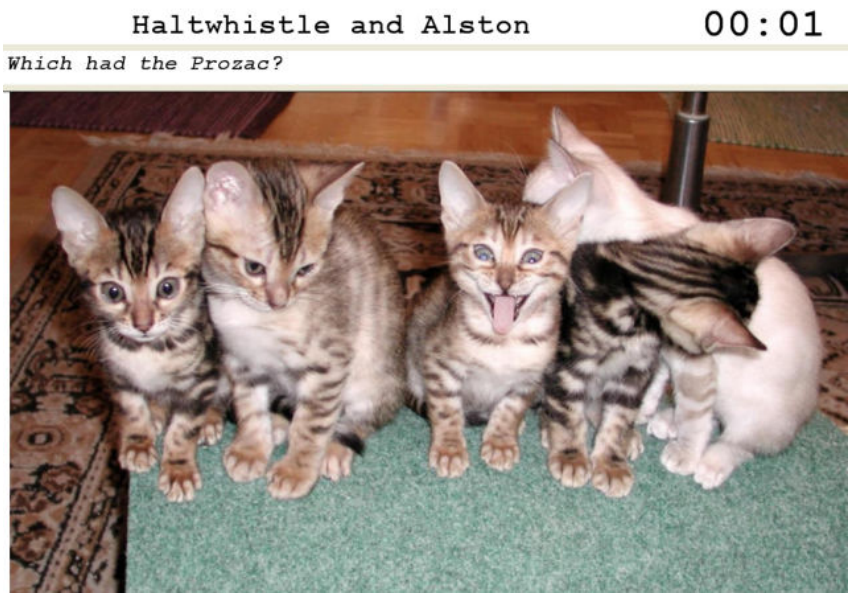
The minimum achievable screen display cycle time depends on the speed of your computer!

Remaining RUN information consists of example screens with notes.

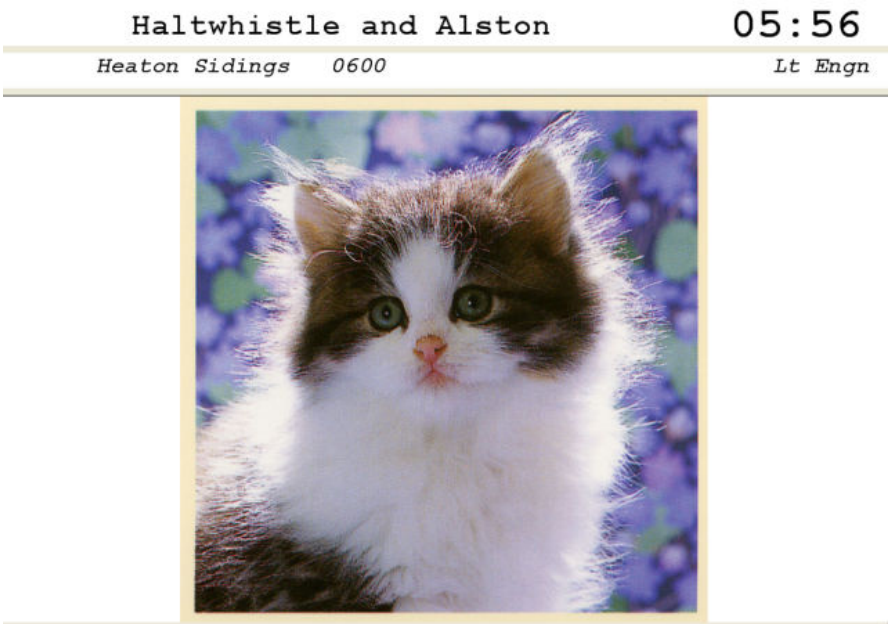
2.5.2.2 Info Pages

TEXT:

PICTURE:



Note the headings! For an 'Info Only' page, the default heading is blank but for a Train related Info page, a default heading based on the train details is generated – see the example below. Over-ridden headings are entered in EDIT DISPLAY DATA.



2.5.3 Run Modes

2.5.3.1 Timetabled Mode

In Timetabled mode, you act as the 'Fat Controller' - with apologies to the late Reverend Audrey. Assuming that you have not cheated by turning off Cancellation/Late Reporting, the trains you have scheduled to run are displayed and it is up to you to mark an entry complete or cancelled.

Trains will be marked LATE after the 'late allowance' set in the Run Parameters screen, and automatically cancelled after the 'Display After' period has expired.

To mark a train complete/cancelled:

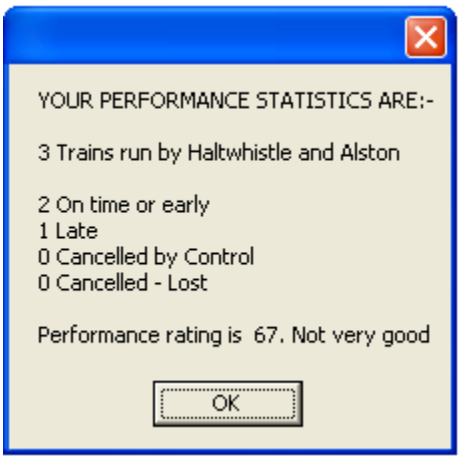
While the train screen is displayed, press Page Up or Home or Up Arrow to select the first train or Page Down/End/Down Arrow to select the last. The screen will indicate the selection with an asterisk.

Move the selection using Up/Down Arrow.

Press 'Enter' to mark complete, 'c' or 'C' to cancel.

The train will now disappear from the display. If cancelled, in true railway fashion, a random excuse for the cancellation will be displayed. If you have opted to confirm cancellations (Parameters/ Run Settings), you will be unable to Complete/Cancel other trains until you have acknowledged the cancellation - and serves you right!

Note that your performance depends on how many trains are run to time - late and cancelled trains are not desirable! When you reach the end of your tether and press Escape, your performance is displayed for all to see:


YOUR PERFORMANCE STATISTICS ARE:-
3 Trains run by Haltwhistle and Alston
2 On time or early
1 Late
0 Cancelled by Control
0 Cancelled - Lost
Performance rating is 67. Not very good
OK

Of course, you may do better!

2.5.3.2 Manual Skip Mode

At the start of the run, all screens (if any) applicable at the selected start time are displayed in sequence. As in the other options, after allowance for non-displayed items (see Priority in the Glossary), the display repeats. The clock does not advance except as below.

Pressing 'n' or 'N' (Next) will advance the clock to the next key item (priority 1 - 4) or train arrival/departure/pass time as appropriate, calculate the screens and then display as described earlier until the next 'N'ext command.

2.5.3.3 Auto Skip Mode

This is a combination of Timetabled and Manual Skip modes. The clock **will** advance, but the more esoteric aspects of Timetable mode (train complete/cancel and performance assessment) are absent.

As in Manual Skip, you can press 'N'ext to advance the clock. However, the system will automatically perform a 'N'ext at any time that the display would otherwise be blank. This means that you must think carefully about Item Priorities if you intend to use this option since priorities 2-9 could lead to a blank screen when you don't expect it. Also, if you have a Sound Item:

1. The program will autoskip to it and start playing the sound.
2. If there are then no Items in the display, another autoskip will take place. This could result in the sound play being terminated as out of time!

2.5.4 Announcer

This describes how the Announcer performs his/her duties.

- If you haven't appointed an Announcer (or have no sound facilities on your PC), no announcements are made.
- Announcements are always made in the order passed to the Announcer.
- Late Train/Cancelled Train announcements are passed to the Announcer only in TimeTabled Mode, and only when these are part of agreed duties. Scripted Announcements are dealt with depending on whether the announcement is associated with a Train and/or Info:

  With train: passed to Announcer once only at the appropriate arr/dep/pass time: - e.g.

  Stopping or Terminating - Arrival time
  Non-Stop - Passing time
  Originating - Departure time

  With Info, no Train: Passed to the Announcer when the Info screen is first displayed, depending on the Priority and the Start/End times. Following this first announcements, others may be made depending on the Announcement Frequency:

  Once - no repetitions.
  Occasionally - not often!
  Seldom - even less often.

  No Info, no Train: Passed to Announcer at start time, repetitions depending on Frequency as above.

2.5.4.1 Late/Cancel/Due train announcements

During Run in Timetabled Mode, Late and Cancelled train announcements are generated according to the following rules:

They are only generated if the option is set in the Announcer Selection within Parameters. If no announcer has been appointed, no announcements are made. The train details are:

Terminating train (arrival only):
The *{TrainType} FirstCol* arrival from *location* (at *Station)* due at *arr LastCol*
{ Train }

Originating Train (departure only):
The *{TrainType} FirstCol* departure (from *Station)* to *location* due to depart at *dep LastCol*
{ Train }
Through Train (stopping):
The *{TrainType} FirstCol* arrival from *location* to *location* (at *Station)* due to arrive at *arr* and depart at *dep LastCol*
{ Train }

Through Train (non-stop):
The *{TrainType} FirstCol* from *location* to *location* passing non-stop (*Station)* at *pass LastCol*
{ Train }

Station only when you have more than one station and the option is set in Announcer Selection.

TrainType, FirstCol, LastCol are used only when the option is selected in Announcer Selection, and only when the value in non-space. When used, the fields *FirstCol LastCol* are preceded by the user entered column header if it exists.

TrainType, FirstCol , FirstCol Heading, from location, to location , LastCol, *LastCol Heading* and *Station* are all checked against the announcer's abbreviations and expanded as appropriate.

The full announcement is then:

"We regret that the *train details* is late *random excuse*" or "We regret that the *train details* is cancelled *random excuse*" as appropriate.

For example:

"We regret that the express passenger train platform one arrival from Alston at Haltwhistle due at 1233 p m is cancelled because of leaves on the line"

"express passenger train" by expansion of train type 'Exp Pass'
"platform one" by expansion of PLAT and 1 used for first column heading and value.

Train due announcements are generated using the same logic, except that the train times are omitted.

Bear in mind that, if announcers are overworked, they are inclined to ignore announcements when they have six already scheduled including the current one. In practice, this will only happen when the clock speed is set very high in Timetabled or Autoskip modes.

2.5.5 Sound (Wav/MP3)

Sound Items are processed depending on whether the Sound is associated with a Train:

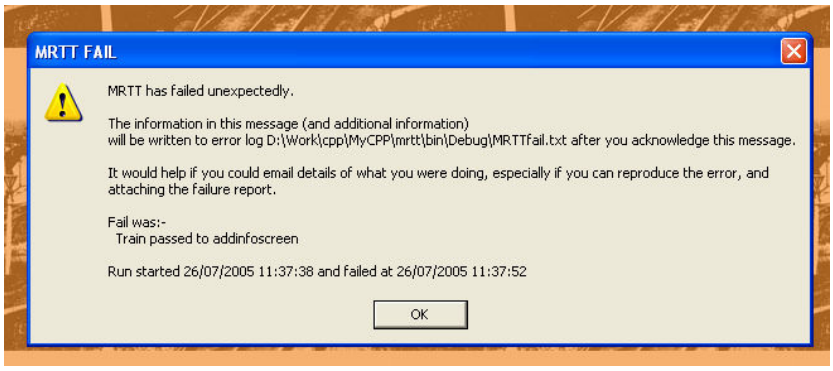
With train: processed at the appropriate arr/dep/pass time: - e.g.

Stopping or Terminating - Arrival time
Non-Stop - Passing time
Originating - Departure time

Otherwise: Processed at Item StartTime.

3 Error handling

The MRTT program checks various error conditions, such as the selected input file not being a valid MRTT file. Should an 'untested for' error occur, it would usually point to a programming error. When such errors occur, you will see an error screen such as:


MRTT FAIL
MRTT has failed unexpectedly.
The information in this message (and additional information)
will be written to error log D:\Work\cpp\MyCPP\mrtt\bin\Debug\MRTTfail.txt after you acknowledge this message.
It would help if you could email details of what you were doing, especially if you can reproduce the error, and attaching the failure report.
Fail was:-
Train passed to addinfoscreen
Run started 26/07/2005 11:37:38 and failed at 26/07/2005 11:37:52
OK

You will note that, following your acknowledgment, an error log is written. This contains additional information about the error which may help the author identify and fix the problem in a new program release.

Should an error log already exist, you will be given the option of adding the current problem to the log or overwriting it. To guide you, the creation date (first error) and the last write (last error) are supplied.

After the log is written, you will be given an opportunity to send a fault report direct to me if you have an Internet connection on the PC you are running MRTT on. The report consists of the fault details that were written to the log and any other information you can provide to locate and fix the problem. You can (if you wish) send it anonymously. Otherwise, if you have no internet access, it would be very helpful if you could email the author from another PC, giving full details of what you did, and (ideally) how to recreate the error, attaching the error log created by the program.

4 Notes

The program was written in Microsoft's .NET language C# (C Sharpe) by a retired pensioned-off programmer who also happens to be keen on model railways. Some of the code has been provided by contributors to the 'Code Project ' www.thecodeproject.com , which has saved me considerable effort. In particular, most of the logic for Text Screen input was provided by Richard Parsons.

Remaining entries provide additional technical information.

4.1 Run Logic

Manual Skip

At Start of Run:

Set the clock time, Build List

Build List:

1) Define the display window as spanning times between the new clock time and the Parameter Display After.

2) Add to the displayable item list all items with display Start/End times partly or fully within the display window, remove from list any no longer relevant.

3) If the Clock Time is the start time of a sound item, 'Sound Play'.

4) Display the screens in the displayable item list.

'N'ext key:

1) Find the first Key Item with a Start Time after the current clock time. If the item is a train, set the Clock to the earliest of arrive/depart/pass, otherwise (Info or Sound) set the Clock to the item's Start Time.

2) Build List.

Sound Play:

The system will ensure that no more than two sounds are played concurrently.

New Sounds are only played when the sound's start time equals the clock time or the train time (see Run option):
IF more than one sound starts at the same time:
Two new sounds will be played together **only** if the last one added allows concurrent play
(Note - if three sounds have the same start time, at least one will **never** get played)
Earlier Sounds that are still active will be suspended if necessary to allow the new sound to play.

Once a sound has finished playing, it will restart if marked 'Loop'

Sounds are stopped once the clock passes the end time or the play ends and the sound is not marked 'Loop'. If there are suspended sounds that are can now be played, they will be restarted.

Auto Skip

As Manual Skip and:

Automatically advance the clock according to the clock speed. Each time the clock changes, 'Build List'.

Any time the screen is blank, 'Next'.

Timetabled

All driven by the clock!

4.2 Key Item

Any item with a priority in the range 1 ~ 4. Only free-standing Info items can have a priority other than one – other combinations are automatically assigned 1.

Run Modes Manual Skip & Auto Skip move the clock **forward** to:
The next train arrive/pass/or depart time as appropriate
Or, failing that
The display start time of next key item.

All displayable key items (all pages) will be shown at least once when the current time is within the display start and end times. Non-key items may or may not be displayed - for example a priority 9 screen is shown at random intervals **averaging** every 100 opportunities which may not occur if the item's display interval is short.

4.3 Performance Statistics

Only when Operating Mode is Timetabled, generated on exit.

Set Total Trains Run to
On Time or early + Late + Cancelled by operator + cancelled by system.

If Total is zero, exit.

Initial value Performance = 100
If the Late Running Allowance has been adjusted (not = 2 mins): -
Increase/Decrease Performance by 3 for each minute reduction/increase.

Now decrease Performance for each train not on time or early:

Performance = (number trains late/cancelled user/cancelled system * penalty) / Total trains run * 100
* is multiply, / is divide
penalty is 1 for late, 3 for cancelled by operator, 5 for cancelled by system (i.e. never turned up - assumed lost!)
If Performance < zero, Performance = zero.

Assess verdict:

Performance	Verdict
>= 100	Well done, did you cheat?
> 80	Excellent
> 60	Not very good
> 40	Terrible
else	Time to call in the receivers

4.4 Priority

Value 1 ~ 9, controls the display frequency of an Item (Train or Info) during Run:

1. Display each time the opportunity arises.
2. Display cycles 1, 3, 5 ….
3. Display cycles 1, 4, 7 ….
4. Display cycles 1, 5, 9 ….
5. Display at random once every 06 cycles.
6. Display at random once every 12 cycles.
7. Display at random once every 25 cycles.
8. Display at random once every 50 cycles.
9. Display at random once every 100 cycles.
   Note that a Key Item has priority less than 5.

Sound Items are key items, but are played **only** when the clock time matches the Item Start Time. They continue playing until:
The Clock Time exceeds the End Time.
The sound ends and loop is not set.
Another sound takes precedence.

Max. 2 sounds playing at once, depending on whether 'concurrent' is allowed.